

EFFECTS OF FLOW ON THE MIGRATORY BEHAVIOR
AND SURVIVAL OF JUVENILE FALL AND SUMMER
CHINOOK SALMON IN JOHN DAY RESERVOIR

ANNUAL REPORT

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by

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ABSTRACT

Juvenile fall chinook salmon, Oncorhynchus tshawytscha, were freeze branded, coded wire tagged, and released into the Columbia River in the tailrace below McNary Dam during the summers of 1981-1983. The objectives of the study were to examine the effects of river flow on the passage time and migrational behavior of the juveniles and to subsequently assess any relationship to adult survival. This report details adult recovery data to June 1987.

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INTRODUCTION

From 1981 to 1983, marked juvenile fall chinook salmon, Oncorhynchus tshawytscha, were released in the tailrace of McNary Dam as part of a study to define the effects of instream flows on the passage time, migrational behavior, and survival of juvenile fall chinook salmon outmigrating through John Day Reservoir. A final report covering the 3 years of juvenile studies in the reservoir (passage time and migrational behavior) (Miller and Sims 1984) was submitted to the Bonneville Power Administration (BPA) and a professional journal by the National Marine Fisheries Service (NMFS). In 1985, NMFS, under contract to BPA, began to evaluate adult returns from these 1981-83 releases.

The adult salmon from the 1981-83 releases are expected to return from the ocean in 1 to 5 years, with the majority being 3-ocean fish and only about 1% returning after 5 years. Consequently, the full complement of adult return data will not be available until early 1988. However, sufficient adult return data have been collected to provide some indication of the effects of instream flows on passage time and survival. This annual report summarizes adult return data received through June 1987. Comprehensive analysis of adult returns will appear in the final report.

METHODS

From 1981 to 1983, subyearling chinook salmon outmigrants were collected at McNary Dam, coded wire tagged, freeze branded, and released into the tailrace below the dam in groups coinciding with early, middle, and late phases of the outmigration. The objective was to determine if rates of

movement and survival, as indexed by adult recoveries, were comparable throughout the outmigration. Releases totaled 77,082 fish with three CWT groups in 1981 (15 June - 26 August), 61,926 fish with four CWT groups in 1982 (24 June - 3 September), and 72,600 fish with five CWT groups in 1983 (16 June - 2 September).

Additionally in 1981, four groups of fall chinook salmon outmigrants from purse seine catches in John Day Reservoir were coded wire tagged, freeze branded, and released at catch sites from River Kilometer 348 to 425 (Sims and Miller 1982). The releases were made from 24 June to 29 September and totaled 10,542 fish.

Returning CWT adult salmon were recovered by tag detection equipment operating in fishways at Bonneville, McNary, and Lower Granite Dams. Additional CWT adults were recovered at hatcheries, spawning grounds, and ocean and river sport and commercial fisheries. This report contains CWT data for actual recoveries processed through June 1987.

RESULTS

Five years of adult recovery data have been collected for the 1981 release groups. A total of 235 adult fall chinook salmon from the releases in the McNary Dam tailrace were recovered from 1982 through 1986 -- 39% from the ocean fisheries and 61% from the river fisheries, traps, hatcheries, and spawning grounds (Table 1 and Appendix Table A1). The total recovery rate for all McNary tailrace releases is 0.305% (Table 2). The early (15 to 29 June), middle (10 to 29 July), and late (3 to 26 August) segments of the outmigration returned at rates of 0.384, 0.341, and 0.1312, respectively (Table 2). The five-ocean fish constitute only 1.3% of the total recoveries (Appendix Table A2).

Table 1. CWT recoveries occurring in the ocean fisheries and Columbia River fisheries, traps, and hatcheries by release year.

Category	1981 ^{a/}		1981 ^{b/}		1982		1983	
	No.	%	No.	%	No.	%	No.	%
Ocean	91	38.7	13	76.5	46	34.3	59	37.3
Columbia River	144	61.3	4	23.5	88	65.7	99	62.7
Total	235		17		134		158	

a/ McNary tailrace release

b/ John Day Reservoir release executed from purse seiner.

Table 2 .--Adult recovery data for subyearling chinook salmon released in the McNary Dam tailrace and in the John Day Reservoir 1981-1983.^{a/}

Dates of Release	Number released	Number of recoveries	Percent recovery	Overall percent recovery	Mean spill John Day Dam (KCFS)	Mean flown John Day Dam (KCFS)	Mean ^{b/} reservoir temperature (°C)
<u>1981^{c/}</u>							
6/15 - 6/29	17,723	68	0.384		134.6	331.3	13
7/10 - 7/29	42,580	145	0.341		6.1	204.8	17
8/3 - 8/26	<u>16,779</u>	<u>22</u>	0.131		4.5	164.4	21
<u>Totals</u>	<u>77,082</u>	<u>235</u>		0.305			
<u>1981^{d/}</u>							
6/23 - 7/15	2,869	6	0.209		74.8	268.9	15
7/16 - 7/31	2,367	1	0.042		3.9	210.9	17
8/4 - 8/6	2,523	10	0.396		4.1	191.3	18
8/11 - 9/29	<u>2,783</u>	<u>0</u>	0 .000		.0	138.1	20
<u>Totals</u>	<u>10,542</u>	<u>17</u>		0.161			
<u>1982</u>							
6/24 - 7/1	8,667	26	0.300		159.0	401.9	15
7/6 - 7/22	18,864	56	0.297		112.2	283.7	15
7/27 - 8/5	11,152	25	0.224		5.8	192.1	19
8/10 - 9/2	<u>23,243</u>	<u>27</u>	0.116		0.4	140.3	22
<u>Totals</u>	<u>61,926</u>	<u>134</u>		0.216			
<u>1983</u>							
6/16 - 7/1	15,046	82	0.545		36.1	230.4	15
7/8 - 7/15	15,007	41	0.273		44.3	199.9	16
7/20 - 7/27	14,687	14	0.095		76.5	210.9	17
7/29 - 8/5	10,594	18	0.170		38.7	203.4	19
8/12 - 9/2	<u>17,266</u>	<u>3</u>	0.017		13.4	149.1	22
<u>Totals</u>	<u>72,600</u>	<u>158</u>		0.218			

a/ Return data from 1982 does not include all 4-ocean fish; 1983 does not include all 3- or any 4-ocean fish.

b/ Mean reservoir temperature taken at 1.5m below surface at various purse seine locations on the reservoir from River Kilometer 348 - 462.

c/ McNary tailrace releases

d/ John Day Pool releases executed from purse seiner.

Only 17 adults were recovered from the tagged groups released from the purse seine in 1981--too few for meaningful conclusions. However, these data are detailed in Tables 1 and 2 and in the appendix.

Four years of adult recovery data have been collected for the 1982 McNary Dam tailrace release groups. To date, a total of 134 adult recoveries have been recorded -- 34% from the ocean fisheries and 66% from the river fisheries, traps, hatcheries, and spawning grounds (Table 1 and Appendix Table A1). To date, the total recovery rate for all 1982 releases is 0.216% (Table 2). The early (24 June to 1 July), middle (6 to 22 July and 27 July to 5 August), and late (10 August to 2 September) segments of the outmigration returned at rates of 0.300, 0.270, and 0.116%, respectively (Table 2).

To date, only 3 years of adult recovery data have been acquired for the 1983 releases. We expect the four-ocean returns to be 20 to 25% of the total realized returns. Therefore, no summary of the 1983 release data will be presented until after the four-ocean fish return in the fall of 1987. However, the data to date are included in Tables 1 and 2 and the appendix tables.

ACTIVITIES FY 1987-88

In the fall of 1987, five-ocean fish from the 1982 releases and four-ocean fish from the 1983 releases will return to the Columbia River. We recommend drafting the final report in the summer of 1988. This should permit sufficient time for the tag recoveries from the 1987 adult migration to be read and incorporated into the coded wire tag data base. We realize that the five-ocean fish from the 1983 release would be omitted from the analysis, but since their contribution is less than 1.5% for any brood year (Appendix Table A2), we expect those data to have negligible impact on any final results.

ACKNOWLEDGMENTS

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APPENDIX A

DATA TABLES

Appendix Table Al.--Summary of adult recovery data for subyearling chinook released in John Day Pool 1981-83. Total number of marked fish released each year appears in parentheses.

	1981 a/		1981 b/		1982		1983	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Ocean								
Alaska	51	56.0	10	77.0	29	63.0	38	64.4
British Columbia	37	40.7	3	23.0	13	28.3	15	25.4
<u>Other</u> ^{c/}	<u>3</u>	3.3	<u>0</u>		<u>4</u>	8.7	<u>6</u>	10.2
Total	91		13		46		59	
Columbia River								
Lower River Comm.	13	9.0	0		11	12.5	6	6.1
Bonneville trap	49	34.0	2	50.0	36	40.9	19	19.2
Indian commercial	42	29.2	2	50.0	26	29.5	44	44.4
McNary trap	9	6.2	0		4	4.6	5	5.1
Priest Rapids Hatchery and trap	20	13.9			5	5.7	19	19.2
		5.6			3	3.4	2	2.1
Stream Survey	<u>11</u>	2.1	—		3	3.4	4	4.0
<u>Other</u> ^{d/}								
Total	144		4		88		99	
TOTAL	235	(77,082)	17	(10,542)	134	(61,926)	158	(72,600)

a/ - McNary tailrace release

b/ - John Day Reservoir release executed from purse seiner.

c/ - Washington, Oregon, and California

d/ - River sport, Wells Hatchery, and Lower Granite trap

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Appendix Table A2.--Summary of 0-age chinook salmon coded wire tagged (CWT), cold branded, and released in the McNary Dam tailrace (16 June to 26 August 1981) and recovered as adults from 1982 to 1986.

	Recoveries CWT 031731 a/							Recoveries CWT 031732 b/							Recoveries CWT 031730 c/						
	Number						%	Number						%	Number						%
	1982	1983	1984	1985	1986	Total	return	1982	1983	1984	1985	1986	Total	return	1982	1983	1984	1985	1986	Total	return
Ocean fishery																					
Alaska	2	0	14	3	0	19	0.110	0	3	20	5	0	28	0.069	0	0	2	2	0	4	0.024
British Columbia	0	5	7	2	0	13	0.073	1	5	6	8	0	20	0.047	1	0	2	1	0	4	0.024
Washington	0	0	0	1	0	1	0.006	0	0	1	0	0	1	0.002	0	0	0	0	0	0	0.000
Oregon	0	0	0	0	0	0	0.000	0	0	9	1	0	0	0.023	0	0	1	0	0	1	0.006
River commercial	0	1	1	0	0	2	0.011	0	0	9	1	0	10	0.023	0	0	1	0	0	1	0.006
Bonneville trap	0	0	5	4	0	9	0.051	1	0	24	9	0	34	0.081	0	0	4	2	0	6	0.036
Indian fishery	0	0	5	2	1	a	0.045	0	5	13	11	2	31	0.073	0	0	2	1	0	3	0.018
McNary trap	1	0	0	0	0	1	0.006	4	0	1	0	0	5	0.012	2	0	0	1	0	1	0.018
River sport	0	0	1	0	0	1	0.006	0	0	0	0	0	0	0.000	0	0	0	0	0	0	0.000
Priest Rapids Hatchery	1	0	a	3	0	12	0.071	1	0	6	1	0	8	0.021	0	0	0	0	0	0	0.000
Stream survey	0	0	2	0	0	2	0.011	1	2	2	1	0	6	0.014	0	0	0	0	0	0	0.000
Wells Hatchery	0	0	0	0	0	0	0.000	0	0	0	0	0	0	0.000	0	0	1	0	0	1	0.000
Lower Granite trap	0	0	0	0	0	0	0.000	1	0	0	0	0	1	0.002	0	0	0	0	0	0	0.000
Total	4	6	43	14	1	68d/	0.384	9	15	83	36	2	145d/	0.341	3	0	12	7	0	22d/	0.131
Percent of recovery	5.9	8.8	63.2	20.6	1.5			6.2	10.3	57.2	24.8	1.4			13.6	0.0	54.5	31.8	0.0		

a/ 17,723 CWT fish released 15 - 29 June 1981.

b/ -

c/ 48,380 CWT CWT fish fish released released 10 - 29 Aug 1981, 1981.

d/ of a total CWT = 77,082, 0.305% (235) have been recovered

Appendix Table A3.—Summary of 0-age chinook salmon coded wire tagged (CWT), cold brawled from reservoir purse seine catches, and released at various John Day Reservoir sites (24 June to 29 September 1981 recovered as adults from 1982 to 1986.

	Recoveries, CWT 031734 a/							Recoveries, CWT 031735 b/							Recoveries, CWT 031736 c/							Recoveries, CWT 031737 d/						
	Number						%	Number						%	Number						%	Number						%
	1982	1983	1984	1985	1986	Total	return	1982	1983	1984	1985	1986	Total	return	1982	1983	1984	1985	1986	Total	return	1982	1983	1984	1985	1986	Total	return
Ocean fishery																												
Alaska	1	2	2	0	0	5	0.174	0	0	1	0	0	1	0.042	0	0	4	0	0	4	0.159	0	0	0	0	0	0	0
British Columbia	0	0	1	0	0	1	0.035	0	0	0	0	0	0	0.000	0	1	0	1	0	2	0.079	0	0	0	0	0	0	0
Bonneville trap	0	0	0	0	0	0	0.000	0	0	0	0	0	0	0.000	0	0	1	1	0	2	0.079	0	0	0	0	0	0	0
Indian fishery	0	0	0	0	0	0	0.000	0	0	0	0	0	0	0.000	0	1	0	1	0	2	0.079	0	0	0	0	0	0	0
Total	1	2	3	0	0	6e/209	0.000	0	0	1	0	0	1e/	0.042	0	2	5	3	0	10e/	0.3%	0	0	0	0	0	0	0.000
Percent of recovery	16.7. 33.3 50.0							100							20.0 50.0 30.0													

a/ 2,869 CWT fish released 24 June to 15 July 1981.

b/ 2,367 CWT fish released 16 - 31 July 1981.

c/ 2,523 CWT fish released 4 - 6 August 1981.

d/ 2,783 CWT fish released 11 August to 29 September 1981.

e/ Of a total CWT = 10,542, 0.160% (17) have been recovered

Appendix Table A4.—Summary of 0-age chinook salmon coded wire tagged (CWT), cold branded, and released from McNary Dam tailrace (24 June to 3 September 1982) and recovered as adults from 1983 to 1986.

	Recoveries, CWT 231611-a'					Recoveries, CWT 231609 b/					Recoveries, CWT 231613 c/					Recoveries, CWT 231615 d/									
	Number		% return			Number		% return			Number		% return			Number		% return							
	1983	19%	1985	1986	Total	1983	1984	1985	19%	Total	1983	1984	1985	1986	Total	1983	1984	1985	1986	Total					
Ocean fishery																									
Alaska	0	04	04	04	0.046	1	0	6	0	7	0.037	0	0	5	0	5	0.045	0	1	12	0	13	0.056		
British Columbia	1	2	2	0	5	0.058	0	2	3	0	5	0.027	0	0	3	0	3	0.058	0	0	0	0	0	0.000	
Washington	0	0	0	00	0.000	0	0	0	0	0	0.000	0	0	1	0	1	0.003	1	0	1	0	2	0.009		
California	0	0	0	0	0	0.000	0	0	1	0	10.005	0	0	0	0	0	0.000	0	0	0	0	0	0.000		
River commercial	0	1	1	0	2	0.023	0	0	4	0	4	0.021	0	1	3	0	4	0.036	0	0	0	I	0	I	0.009
Bonneville trap	0	0	2	24	0.046	4	13	3	4	24	0.127	1	4	1	0	6	0.054	0	2	0	0	2	0.009		
Indian fishery	0	0	0	35	0.058	0	0	8	3	11	0.058	0	1	3	0	4	0.0%	0	0	4	2	6	0.022		
McNary trap	1	0	0	0	1	0.012	0	1	0	0	1	0.005	0	0	0	0	0	0.000	2	0	0	0	2	0.009	
River sport	0	0	0	101	0.012	0	0	0	0	0	0.000	0	0	1	0	1	0.009	0	0	0	0	0	0.003		
Priest Rapids Hatchery	0	1	1	0	2	0.023	0	1	2	0	3	0.016	0	0	0	0	0	0.000	0	0	0	0	0	0.000	
Stream survey	0	0	0	101	0.012	0	0	0	0	0	0.000	0	1	0	0	1	0.009	9	9	1	9	I	0.004		
Lower Granite trap	1	0	0	0	1	0.012	0	0	0	0	0	0.000	0	0	0	0	0	0.000	0	0	0	0	0	0.000	
Total	3	4	14	5	26e/	0.300	5	17	27	7	56e/	0.297	1	7	17	0	25e/	0.224	3	3	19	2	27e/	0.116	
Percent of recovery	11.5.	15.4	53.8	19.2			8.9	30.4	48.2	12.5			4.0	28.0	68.0				11.1	11.1	70.4	7.4			

b/ 8,667 CWT fish released 24 June - to 1 July 1982.

c/ 18,864 CWT fish released 6 22 July 1982.

d/ 11,152 CWT fish released 27 July to 5 August 1982.

e/ 23,243 CWT fish released 10 August to 3 September 1982.
Of a total CWT = 61,926, 0.216X (134) have been recovered

Appendix Table A5.—Summary of O-age chinook salmon coded wire tagged (CWT), cold branded, and released from McNary Dam tailrace (16 June to 2 September 1983) and recovered as adults from 1984 to 1986.

	Recoveries, CWT 231623 a/				Recoveries, CWT 231633 b/				Recoveries, CWT 231630 c/				Recoveries, CWT 231727 d/				Recoveries, CWT 231624 e/			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
	1984	1985	1986	Total	return	1984	1985	1986	Total	return	1984	1985	1986	Total	return	1984	1985	1986	Total	return
Ocean fishery																				
Alaska	2	35	0	37	0.317	1	0	0	1	0.037	0	0	0	0	0.000	0	0	0	0	0.000
British Columbia	0	5	1	6	0.051	1	4	1	6	0.040	1	0	1	2	0.014	0	1	0	1	0.009
Washington	0	0	1	I	0.009	0	0	1	1	0.007	0	0	0	0	0.000	0	1	0	1	0.009
Oregon	0	0	1	1	0.000	0	1	1	2	0.013	0	0	0	0	0.000	0	1	0	1	0.009
River commercial	0	2	0	2	0.017	0	3	0	3	0.020	0	0	0	0	0.000	0	1	0	1	0.009
Bonneville trap	3	0	1	4	0.034	3	1	3	7	0.047	1	I	0	2	0.014	3	1	1	5	0.047
Indian fishery	0	4	15	19	0.163	0	5	6	11	0.073	0	0	6	6	0.041	0	0	6	6	0.057
McNary trap	0	0	0	0	0.000	1	0	0	1	0.007	1	0	0	1	0.007	3	0	0	3	0.028
River sport	0	1	0	I	0.009	0	I	I	2	0.013	0	1	0	1	0.007	0	0	0	0	0.000
Priest Rapids trap	0	0	0	0	0.000	2	0	0	2	0.013	0	0	0	0	0.000	0	0	0	0	0.000
Priest Rapids Hatchery	3	7	0	10	0.086	I	3	0	4	0.027	0	2	0	2	0.014	0	I	0	I	0.009
Stream survey	I	0	0	I	0.009	0	1	0	1	0.007	0	0	0	0	0.000	0	0	0	0	0.000
Total	9	54	19	82 f/	0.545	9	19	13	41 f/	0.273	3	4	7	14 f/	0.095	6	5	7	18 f/	0.170
Percent of recovery	11.0	65.9	33.2			22.0	46.3	31.7			21.4	28.6	50.0			33.3	27.8	38.9		100.0

b/ 15,046 CWT fish released 16 June to 1 July 1983

c/ 15,007 CWT fish released 8 20 - 15 27 July 1983 1983.

d/ 10,594 14,687 CWT fish released 29 July July to 5 August 1983.

e/ 17,266 CWT fish released 12 August to 2 September 1983.

f/ Of a total CWT = 72,600, 0.218% (158) have been recovered

Appendix Table A6. --Adult chinook salmon returns in 1982 - 1986 by recapture gear, location, and date from 0-age chinook salmon releases in McNary Dam tailrace in 1981.

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
<u>Ocean</u>						
031731	17,723	15-29 June	02 Aug 82	Ocean Purse Seine	Ketchikan AK	41.0
			29 Aug 82	Ocean Commercial	Ketchikan AK	48.0
			10 Jun 84	Ocean Troll	Petersburg AK	69.0
			20 Jun 84	Ocean Troll	Sitka AK	82.5
			21 Jun 84	Ocean Troll	Petersburg AK	73.0
			22 Jun 84	Ocean Troll	Pelican AK	68.5
			26 Jun 84	Ocean Troll	Sitka AK	93.0
			02 Jul 84	Ocean Troll	Sitka AK	79.0
			06 Jul 84	Ocean Troll	Pelican AK	*
			17 Jul 84	Ocean Troll	Pelican AK	82.0
			23 Jul 84	Ocean Troll	Excursion Inlet AK	87.0
			23 Jul 84	Ocean Troll	Sitka AK	86.5
			25 Jul 84	Ocean Troll	Pelican AK	*
			27 Jul 84	Ocean Troll	Petersburg AK	*
			29 Jul 84	Ocean Troll	Excursion Inlet AK	72.5
			02 Aug 84	Ocean Troll	Pelican AK	*
			12 Jun 85	Ocean Troll	Sitka AK	87.0
			09 Jul 85	Ocean Troll	Sitka AK	92.0
			22 Jul 85	Ocean Troll	Sitka AK	*
			19 May 83	Ocean Troll	Inside Queen Charlotte Island, B. C.	61.3
			06 Jun 83	Ocean Troll	Inside Queen Charlotte Island, B. C.	65.0
			25 Jul 83	Ocean Troll	Outside South Vancouver Island, B. C.	*
			29 Aug 83	Ocean Troll	Inside Queen Charlotte Island, B. C.	39.0
			26 Sep 83	Ocean Troll	Outside South Vancouver Island, B. C.	*
			05 Jun 84	Ocean Troll	Inside Queen Charlotte Island, B. C.	76.6
			01 Aug 84	Non-Indian Ocean Net	Inside Queen Charlotte Island, B. C.	94.5
			15 Aug 84	Ocean Troll	Outside North Vancouver Island, B. C.	90.0
			20 Aug 84	Ocean Troll	Inside Queen Charlotte Island, B. C.	85.6
			21 Aug 84	Ocean Troll	Outside North Vancouver Island, B. C.	69.9
			05 Sep 84	Ocean Troll	Outside South Vancouver Island, B. C.	83.6

Appendix Table A6 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			11 Sep 84	Ocean Troll	Ousside North Vancouver Island, B. C.	83.2
			13 Sep 84	Ocean Troll	Outside North Vancouver Island, B. C.	93.0
			27 Aug 85	Ocean Sport	Strait of Juan de Fuca	109.0
					<u>Columbia River</u>	
			07 Oct 83	Commercial Fish	CRM o-19.5	56.8
			20 Sep 84	Commercial Fish	CRM 19.5-54	86.2
			11 Sep 84	Bonneville Trap	CRM 145.5	75.0
			Oct 84	Bonneville Trap	CRM 145.5	**
			Oct 84	Bonneville Trap	CRM 145.5	**
			Oct 84	Bonneville Trap	CRM 145.5	**
			Oct 84	Bonneville Trap	CRM 145.5	**
			11 Oct 85	Bonneville Trap	CRM 145.5	90.3
			16 Nov 85	Bonneville Trap	CRM 145.5	87.8
			26 Nov 85	Bonneville Trap	CRM 145.5	90.4
			12 Dec 85	Bonneville Trap	CRM 145.5	97.8
			03 Sep 84	Fall Indian Net	CRM 148-292	84.5
			03 Sep 84	Fall Indian Net	CRM 148-292	84.8
			03 Sep 84	Fall Indian Net	CRM 148-292	95.4
			12 Sep 84	Fall Indian Net	CRM 148-292	85.5
			19 Sep 84	Fall Indian Net	CRM 148-292	75.2
			09 Sep 85	Fall Indian Net	CRM 148-292	98.8
			22 Sep 85	Fall Indian Net	CRM 148-292	92.8
			12 Oct 84	Col. River Sport	Hanford Reach	88.0
			08 Sep 82	Priest Rapids		
				Hatchery	CRM 397.1	47.0
			24 Oct 85	Priest Rapids		
				Hatchery	CRM 397.1	105.0
			29 Oct 85	Priest Rapids		
				Hatchery	CRM 397.1	98.0
			30 Oct 85	Priest Rapids		
				Hatchery	CRM 397.1	112.0
			12 Sep 84	Priest Rapids		
				Hatchery	CRM 397.1	86.0
			26 Sep 84	Priest Rapids		
				Hatchery	CRM 397.1	90.0
			29 Oct 84	Priest Rapids		
				Hatchery	CRM 397.1	77.0
			30 Oct 84	Priest Rapids		
				Hatchery	CRM 397.1	95.0

Appendix Table A6 (cont)

Coded wire number	Date released	Date recaptured	Recapture gear	Area	Length (cm)
		31 Oct 84	Priest Rapids Hatchery	CRM 397.1	90.0
		07 Nov 84	Priest Rapids Hatchery	CRM 397.1	96.0
		11 Nov 84	Priest Rapids Hatchery	CRM 397.1	77.0
		31 Nov 84	Priest Rapids Hatchery	CRM 397.1	87.0
		11 Nov 84	Stream Survey	CRM 397.1	98.0
		11 Nov 84	Stream Survey	CRM 397.1	87.0
031732	42580	10-29 Jul 81	*Jul 84	Sport Sitka AK	*
			12 Jul 83	Troll Sitka AK	*
			24 Aug 83	Troll Metlakatla AK	62.0
			28 Aug 83	Troll Juneau AK	*
			09 Jun 84	Troll Petersburg AK	74.5
			09 Jun 84	Troll Petersburg AK	68.0
			11 Jun 84	Troll Petersburg AK	80.0
			11 Jun 84	Troll Petersburg AK	75.5
			13 Jun 84	Troll Sitka AK	85.0
			14 Jun 84	Troll Hoonah AK	81.0
			16 Jun 84	Troll Pelican AK	*
			17 Jun 84	Troll Pelican AK	*
			19 Jun 84	Troll Petersburg AK	73.1
			25 Jun 84	Troll Pelican AK	69.0
			01 Jul 84	Troll Sitka AK	82.0
			05 Jul 84	Troll Pelican AK	72.0
			23 Jul 84	Troll Sitka AK	93.5
			24 Jul 84	Troll Pelican AK	*
			30 Jul 84	Troll Pelican AK	87.0
			30 Jul 84	Troll Petersburg AK	80.5
			31 Jul 84	Troll Excursion Inlet AK	79.5
			02 Aug 84	Troll Pelican AK	*
			23 Oct 84	Troll Petersburg AK	76.1
			13 Jun 85	Troll Petersburg AK	90.5
			05 Jul 85	Troll Pelican AK	89.8
			14 Jul 85	Troll Pelican AK	*
			25 Jul 85	Troll Sitka AK	94.0
			19 Jul 85	Troll Ketchikan AK	83.0
			20 Aug 83	Sport Vancouver B. C.	*
			14 Jul 82	Non-Indian Net Fishery	Queen Charlotte Strait Island B. C.
			01 Aug 85	Non-Indian Net Fishery	Queen Charlotte Strait Island B. C.
					35.0
					73.8

pendix Table A6 (cont)

ded wire g number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			04 Aug 83	Troll Inside Queen Charlotte Island B. C.		60.3
			22 Aug 83	Troll Inside Queen Charlotte Island B. C.		66.2
			09 Sep 83	Troll Inside Queen Charlotte Island B. C.		60.0
			16 Sep 83	Troll Outside South Vancouver Island B. C.		59.3
			30 Apr 84	Troll Outside North Vancouver Island B. C.		79.7
			30 May 84	Troll Outside North Vancouver Island B. C.		73.9
			05 Jun 84	Troll Inside Queen Charlotte Island B. C.		60.4
			18 Jun 84	Troll Outside South Vancouver Island B. C.		71.8
			17 Aug 84	Troll Inside Queen Charlotte Island B. C.		75.7
			07 Sep 84	Troll Outside North Vancouver Island B. C.		83.8
			01 May 85	Troll Outside North Vancouver Island B. C.		95.6
			01 May 85	Troll Inside Queen Charlotte Island B. C.		92.0
			12 Aug 85	Troll Outside North Vancouver Island B. C.		73.5
			15 Aug 85	Troll Outside South Vancouver Island B. C.		91.3
			16 Aug 85	Troll Queen Charlotte Strait B. C.		89.8
			03 Aug 85	Troll Queen Charlotte Strait B. C.		74.1
			01 Sep 85	Troll Outside South Vancouver Island B. C.		89.3
			08 Aug 84	Troll Astoria OR		91.0
				<u>Columbia River</u>		
			11 Sep 84	Commercial Fish	CRM o-19.5	78.0
			12 Sep 84	Commercial Fish	CRM o-19.5	83.8
			20 Sep 84	Commercial Fish	CRM o-19.5	94.4
			11 Sep 84	Commercial Fish	CRM 0-19.5-54.0	83.0
			13 Sep 84	Commercial Fish	CRM 0-19.5-54.0	88.5
			19 Sep 84	Commercial Fish	CRM 0-19.5-54.0	86.9

Appendix Table A6 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			26 Sep 84	Commercial Fish	CRM 0-19.5-54.0	77.5
			17 Sep 85	Commercial Fish	CRM 0-19.5-54.0	95.5
			11 Sep 84	Commercial Fish	CRM 87-129	92.1
			02 Oct 84	Commercial Fish	CRM 129-145	78.0
			Oct 84	Bonneville Hatchery	CRM 144	*
			01 Sep 82	Bonneville Trap	CRM 145.4	44.0
			16 Sep 84	Bonneville Trap	CRM 145.4	89.C
			19 Sep 84	Bonneville Trap	CRM 145.4	96.0
			23 Sep 84	Bonneville Trap	CRM 145.4	86.0
			23 Sep 84	Bonneville Trap	CRM 145.4	84.0
			Oct 84	Bonneville Trap	CRM 145.4	
			(19 Returns Oct 84)			**
			14 Sep 85	Bonneville Trap	CRM 145.4	82.C
			17 Sep 85	Bonneville Trap	CRM 145.4	81.C
			25 Sep 85	Bonneville Trap	CRM 145.4	83.C
			14 Oct 85	Bonneville Trap	CRM 145.4	97.3
			16 Nov 85	Bonneville Trap	CRM 145.4	97.4
			21 Nov 85	Bonneville Trap	CRM 145.4	94.E
			05 Dec 85	Bonneville Trap	CRM 145.4	99.E
			10 Dec 85	Bonneville Trap	CRM 145.4	96.C
			11 Dec 85	Bonneville Trap	CRM 145.4	98.:
			27 Sep 83	Fall Indian Net Fishery	CRM 148-292	69.1
			27 Sep 83	Fall Indian Net Fishery	CRM 148-292	79.:
			29 Sep 83	Fall Indian Net Fishery	CRM 148-292	75.:
			06 Oct 83	Fall Indian Net Fishery	CRM 148-292	73.1
			06 Oct 83	Fall Indian Net Fishery	CRM 148-292	69.1
			23 Aug 84	Fall Indian Net Fishery	CRM 148-292	91.1
			23 Aug 84	Fall Indian Net Fishery	CRM 148-292	91.1
			04 Sep 84	Fall Indian Net Fishery	CRM 148-292	87.1
			04 Sep 84	Fall Indian Net Fishery	CRM 148-292	68.
			05 Sep 84	Fall Indian Net Fishery	CRM 148-292	82.
			14 Sep 84	Fall Indian Net Fishery	CRM 148-292	95.
			19 Sep 84	Fall Indian Net Fishery	CRM 148-292	85.

Appendix Table A6 (cont)

Encoded wire number	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
		20 Sep 84	Fall Indian Net Fishery	CRM 148-292	94.6
		20 Sep 84	Fall Indian Net Fishery	CRM 148-292	89.0
		20 Sep 84	Fall Indian Net Fishery	CRM 148-292	99.0
		29 Sep 84	Fall Indian Net Fishery	CRM 148-292	82.7
		01 Oct 84	Fall Indian Net Fishery	CRM 148-292	88.0
		27 Aug 85	Fall Indian Net Fishery	CRM 148-292	94.8
		30 Aug 85	Fall Indian Net Fishery	CRM 148-292	94.4
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	91.9
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	99.5
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	98.0
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	90.0
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	97.6
		18 Sep 85	Fall Indian Net Fishery	CRM 148-292	94.1
		18 Sep 85	Fall Indian Net Fishery	CRM 148-292	104.1
		19 Sep 85	Fall Indian Net Fishery	CRM 148-292	91.8
		21 Sep 85	Fall Indian Net Fishery	CRM 148-292	85.8
		04 Sep 86	Fall Indian Net Fishery	CRM 148-292	91.9
		08 Sep 86	Fall Indian Net Fishery	CRM 148-292	101.6
		15 Aug 82	McNary Trap	CRM 292.0	40.0
		08 Sep 82	McNary Trap	CRM 292.0	43.5
		09 Sep 82	McNary Trap	CRM 292.0	49.0
		03 Oct 82	McNary Trap	CRM 292.0	39.0
		11 Oct 82	McNary Trap	CRM 292.0	87.0
		02 Nov 82	Priest Rapids Hatchery	CRM 397.1	48.0
		11 Sep 84	Priest Rapids Hatchery	CRM 397.1	85.0

Appendix Table A6 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			24 Oct 84	Priest Rapids Hatchery	CRM 397.1	86.0
			29 Oct 84	Priest Rapids Hatchery	CRM 397.1	85.0
			30 Oct 84	Priest Rapids Hatchery	CRM 397.1	69.0
			31 Oct 84	Priest Rapids Hatchery	CRM 397.1	87.0
			27 Nov 84	Priest Rapids Hatchery	CRM 397.1	72.0
			29 Oct 85	Priest Rapids Hatchery	CRM 397.1	90.0
			28 Nov 82	Stream Survey	CRM 397.1	51.0
			20 Nov 83	Stream Survey	CRM 397.1	70.0
			20 Nov 83	Stream Survey	CRM 397.1	74.0
			04 Nov 84	Stream Survey	CRM 397.1	92.0
			17 Nov 84	Stream Survey	CRM 397.1	95.0
			08 Dec 85	Stream Survey	CRM 397.1	95.0
			15 Sep 82	Lower Granite Trap	SRM 107.5	40.0
031730	16,779	3-26 Aug 81	17 Jun 84	Troll Petersburg AK	79.0	
			12 Jul 84	Troll Craig AK	80.8	
			10 Jun 85	Troll Ketchikan AK	81.5	
			04 Jul 85	Troll Petersburg AK	39.1	
			15 Jul 82	Non-Indian Net Fishery	Queen Charlotte Strait B. C.	35.0
			22 Aug 84	Troll Inside Queen Charlotte Island B. C.		74.0
			07 Sep 84	Troll Inside Queen Charlotte Island B. C.		88.0
			13 Sep 84	Troll Inside Queen Charlotte Island B. C.		65.0
			05 Oct 85	Troll Inside Queen Charlotte Island B. C.		91.0
				<u>Columbia River</u>		
			22 Aug 84	Bonneville Trap	CRM 145.5	88.0
			28 Aug 84	Bonneville Trap	CRM 145.5	88.0
			01 Oct 85	Bonneville Trap	CRM 145.5	81.0
			30 Dec 85	Bonneville Trap	CRM 145.5	105.0
			04 Sep 84	Fall Indian Net Fishery	CRM 148-292	82.0
			20 Sep 84	Fall Indian Net Fishery	CRM 148-292	82.0

Appendix Table A6 (cont.).

Coded wire number	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
	09 Sep 85	Fall	Indian Net		
			Fishery	CRM 148-292	92.1
	13 Jul 82	McNary Trap		CRM 292	38.0
	17 Jul 82	McNary Trap		CRM 292	39.0
	29 Sep 85	McNary Trap		CRM 292	100.0
	17 Oct 84	Wells Rack		CRM 516.6	96.0

No data

* Fish taken from trap and delivered to Bonneville Hatchery for egg stripping. Tags returned to NMFS at end of October

Appendix Table A7--Adult chinook salmon returns in 1982 - 1986 by recapture gear, location, and date from 0-age chinook salmon releases in John Day Reservoir in 1981.

pendix Table A8. --Adult chinook salmon returns in 1983 - 1986 by recapture gear, location, and date from 0-age chinook salmon releases in McNary Dam tailrace in 1982.

Released wire g number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
231609	8,667	24 Jun - 1 Jul 82				
<u>Ocean</u>						
		11 Jun 85	Troll	Petersburg AK	69.9	
		09 Jul 85	Troll	Petersburg AK	76.4	
		15 Jul 85	Troll	Sitka AK	80.0	
		23 Jul 85	Troll	Sitka AK	69.0	
		21 Jul 83	Troll	B. C.	60.0	
		14 Aug 84	Troll	B. C.	71.2	
		07 Sep 84	Troll	B. C.	81.2	
		* Nov 85	Troll	B. C.	*	
		* Jul 85	Troll	B. C.	87.1	
<u>Columbia River</u>						
		17 Sep 85	Commercial Fishery	CRM 0-19.5	89.8	
		11 Sep 84	Commercial Fishery	CRM 19.5 - 54.0	62.9	
		11 Sep 85	Bonneville Trap	CRM 145.4	64.5	
		04 Nov 85	Bonneville Trap	CRM 145.4	87.3	
		26 Aug 86	Bonneville Trap	CRM 145.4	89.0	
		02 Sep 86	Bonneville Trap	CRM 145.4	88.0	
		24 Aug 85	Fall Indian Net Fishery	CRM 148-292	87.8	
		15 Sep 85	Fall Indian Net Fishery	CRM 148-292	65.9	
		19 Aug 86	Fall Indian Net Fishery	CRM 148-292	95.8	
		03 Sep 86	Fall Indian Net Fishery	CRM 148-292	83.5	
		16 Sep 86	Fall Indian Net Fishery	CRM 148-292	101.0	
		01 Sep 83	McNary Trap	CRM 292.0	39.0	
		09 Nov 84	Priest Rapids Hatchery	CRM 397.1	80.0	
		27 Sep 85	PriestRapids Hatchery	CRM 397.1	79.0	
		12 Oct 85	River Sport above Snake River	CRM 397.1	76.0-	
		04 Dec 85	Stream Survey	CRM 397.1	91.0	
		06 Oct 83	Lower Granite Trap	SRM 107.5	42.0	

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Appendix Table A8 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Lengt (cm)
<u>Ocean</u>						
	18	Jul 83	Troll	Ketchikan AK	*	
	13	Jun 85	Troll	Pelican AK	81.	
	13	Jun 85	Troll	Wrangell AK	77.1	
	16	Jun 85	Troll	Pelican AK	75.0	
	23	Jul 85	Troll	Sitka AK	76.1	
	23	Jul 85	Troll	Petersburg AK	79.1	
	27	Aug 85	Troll	Sitka AK	70.1	
	07	Aug 84	Troll	Inside Queen Charlotte Island B. C.	65.	
	08	Aug 84	Troll	Inside Queen Charlotte Island B. C.	60.	
	* Jul 85		Troll	Inside Queen Charlotte Island B. C.	75.	
	* Aug 85		Troll	Inside Queen Charlotte Island B. C.	92.	
	* Sep 85		Troll	Inside Queen Charlotte Island B. C.	85.	
	05	Jun 85	Troll	Bodega Bay CA	89.	
<u>Columbia River</u>						
	16	Sep 85	Commercial Fishery	CRM 0-19.5	83.	
	17	Sep 85	Commercial Fishery	CRM 0-19.5	84.	
	24	Sep 85	Commercial Fishery	CRM 19.5-54	79.	
	22	Oct 85	Commercial Fishery	CRM 19.5-54	78.	
	15	Sep 83	Bonneville Trap	CRM 145.5	46.	
	15	Sep 83	Bonneville Trap	CRM 145.5	54.	
	21	Sep 83	Bonneville Trap	CRM 145.5	46.	
	22	Sep 83	Bonneville Trap	CRM 145.5	47.	
	17	Aug 84	Bonneville Trap	CRM 145.5	87.	
	22	Aug 84	Bonneville Trap	CRM 145.5	73.	
	22	Aug 84	Bonneville Trap	CRM 145.5	90.	
	31	Aug 84	Bonneville Trap	CRM 145.5	91.	
	01	Sep 84	Bonneville Trap	CRM 145.5	87.	
	03	Sep 84	Bonneville Trap	CRM 145.5	73.	
	09	Sep 84	Bonneville Trap	CRM 145.5	80.	
	12	Sep 84	Bonneville Trap	CRM 145.5	78.	
	16	Sep 84	Bonneville Trap	CRM 145.5	62.	
	18	Sep 84	Bonneville Trap	CRM 145.5	84.	
	19	Sep 84	Bonneville Trap	CRM 145.5	53.	
	20	Sep 84	Bonneville Trap	CRM 145.5	57.	
	25	Sep 84	Bonneville Trap	CRM 145.5	70.	
	09	Sep 85	Bonneville Trap	CRM 145.5	80.	

pendix Table A8 (cont)

ded wire g number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			12 Sep 85	Bonneville Trap	CRM 145.5	79.0
			04 Nov 85	Bonneville Trap	CRM 145.5	87.3
			25 Aug 86	Bonneville Trap	CRM 145.5	102.0
			28 Aug 86	Bonneville Trap	CRM 145.5	103.0
			10 Sep 86	Bonneville Trap	CRM 145.5	94.0
			10 Sep 86	Bonneville Trap	CRM 145.5	92.0
			01 Jun 85	Fall Indian Net Fishery	CRM 148-292	78.1
			25 Aug 85	Fall Indian Net Fishery	CRM 148-292	71.5
			09 Sep 85	Fall Indian Net Fishery	CRM 148-292	81.4
			15 Sep 85	Fall Indian Net Fishery	CRM 148-292	80.0
			16 Sep 85	Fall Indian Net Fishery	CRM 148-292	72.5
			16 Sep 85	Fall Indian Net Fishery	CRM 148-292	80.0
			19 Sep 85	Fall Indian Net Fishery	CRM 148-292	80.2
			24 Sep 85	Fall Indian Net Fishery	CRM 148-292	93.0
			02 Sep 85	Fall Indian Net Fishery	CRM 148-292	84.0
			03 Sep 86	Fall Indian Net Fishery	CRM 148-292	98.1
			04 Sep 86	Fall Indian Net Fishery	CRM 148-292	107.6
			21 Sep 84	McNary Trap	CRM 292.0	95.0
			31 Oct 84	Priest Rapids Hatchery	CRM 397.1	67.0
			29 Oct 85	Priest Rapids Hatchery	CRM 397.1	84.0
			06 Nov 85	Priest Rapids Hatchery	CRM 397.1	81.0
			28 Sep 86	Priest Rapids Hatchery	CRM 397.1	96.0
			05 Oct 86	Priest Rapids Hatchery	CRM 397.1	94.0
231613	11,152	S7 Jul - 5 Aug		Ocean		
			06 Jun 85	Troll	Petersburg AU	72.0
			12 Jul 85	Troll	Petersburg AK	74.5
			16 Jul 85	Troll	Petersburg AK	68.6

Appendix Table A8 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Lengt (cm)
			16 Jul 85	Troll	Ketchikan AK	80.0
			27 Aug 85	Troll	Ketchikan AK	92.0
			* Aug 85	Troll	Inside Queen Charlotte Island B. C.	79.9
			* Aug 85	Troll	Queen Charlotte Sound B. C.	*
			8 Sep 85	Troll	Inside Queen Charlotte Island B. C.	80.0
			21 Aug 85	Sport	Columbia River	80.0
					<u>Columbia River</u>	
			10 Oct 84	Commercial Fishery	CRM 19.5-54.0	56.0
			25 Sep 85	Commercial Fishery	CRM 19.5-54.0	88.
			03 Oct 85	Commercial Fishery	CRM 19.5-54.0	86.1
			26 Sep 85	Commercial Fishery	CRM 54.0-87.0	77.0
			29 Aug 85	River Sport	Willamette River	83.1
			23 Sep 83	Bonneville Trap	CRM 145.4	46.1
			12 Jul 84	Bonneville Trap	CRM 145.4	72.0
			30 Aug 84	Bonneville Trap	CRM 145.4	89.0
			21 Sep 84	Bonneville Trap	CRM 145.4	72.0
			25 Sep 84	Bonneville Trap	CRM 145.4	70.0
			17 Dec 85	Bonneville Trap	CRM 145.4	88.0
			16 Aug 84	Fall Indian Net Fishery	CRM 148-292	60.
			09 Sep 85	Fall Indian Net Fishery	CRM 148-292	70.
			19 Sep 85	Fall Indian Net Fishery	CRM 148-292	75.
			20 Sep 85	Fall Indian Net Fishery	CRM 148-292	82.
			16 Nov 84	Stream Survey	CRM 397.1	*
231615	23,243	9 Aug - 3 Sep				
					<u>Ocean</u>	
			14 May 84	Troll	Petersburg AK	50.
			03 Jun 85	Troll	Petersburg AK	77.
			06 Jun 85	Troll	Petersburg AK	66.
			06 Jun 85	Troll	Petersburg AK	70.
			13 Jun 85	Troll	Sitka AK	77.
			13 Jun 85	Troll	Sitka AK	72.
			16 Jul 85	Troll	Sitka AK	78.
			18 Jul 85	Troll	Petersburg AK	77.
			22 Jul 85	Troll	Petersburg AK	66.

Appendix Table A8. (cont)

Released wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
	24	Jul 85	Troll	Sitka AK		78.0
	24	Jul 85	Troll	Sitka AK		78.0
	30	Aug 85	Troll	Sitka AK		76.5
	05	Nov 85	Troll	Sitka AK		67.5
	14	Jul 83	Sport	Cape Flattery WA		36.0
	14	Jul 85	Sport	Puget Sound WA		83.0
<u>Columbia River</u>						
	01	Oct 85	Commercial Fishery	CRM 54.0-87.0		86.5
	23	Jul 84	Bonneville Trap	CRM 145.5		68.0
	22	Sep 84	Bonneville Trap	CRM 145.5		46.0
	23	Jun 85	Summer Indian Net Fishery	CRM 148-292		*
	19	Aug 85	Fall Indian Net Fishery	CRM 148-292		95.9
	10	Sep 85	Fall Indian Net Fishery	CRM 148-292		94.3
	15	Sep 85	Fall Indian Net Fishery	CRM 148-292		86.5
	20	Sep 85	Fall Indian Net Fishery	CRM 148-292		68.9
	24	Sep 85	Fall Indian Net Fishery	CRM 148-292		78.4
	05	Oct 83	McNary Trap	CRM 292.0		35.0
	19	Oct 83	McNary Trap	CRM 292.0		40.5
	05	Dec 85	Stream Survey	CRM 397.1		80.0

No Data

Appendix Table A9. -- Adult chinook salmon returns in 1984 - 1986 by recapture gear, location, date from 0-age chinook salmon releases in McNary Dam tailrace in 1983.

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
231623	15,046	16 Jun - 1 Jul			<u>Ocean</u>	
			20 Oct 84	Foreign High-Seas Fisheries	NOPAC 56N152W	51.0
			11 Nov 84	Foreign High-Seas Fisheries	NOPAC 56N152W	47.0
			10 Jun 85	Troll	Pelican AK	*
			10 Jun 85	Troll	Pelican AK	*
			12 Jun 85	Troll	1 Sitka AK	*
			17 Jun 85	Troll	Sitka AK	*
			06 Jul 85	Troll	Pelican AK	*
			10 Jul 85	Troll	Yakutat AK	*
			11 Jul 85	Troll	Pelican AK	*
			12 Jul 85	Troll	Pelican AK	*
			13 Jul 85	Troll	Pelican AK	*
			14 Jul 85	Troll	Pelican AK	*
			14 Jul 85	Purse Seine	Petersburg AK	50.5
			14 Jul 85	Purse Seine	Petersburg AK	50.5
			16 Jul 85	Purse Seine	Petersburg AK	46.C
			16 Jul 85	Purse Seine	Petersburg AK	54.:
			16 Jul 85	Troll	Ketchikan AK	48.:
			17 Jul 85	Troll	Ketchikan AK	61.C
			18 Jul 85	Purse Seine	Hoonah AK	59.c
			19 Jul 85	Purse Seine	Petersburg AK	56.1
			19 Jul 85	Troll	Sitka AK	*
			20 Jul 85	Troll	Sitka AK	60.0
			23 Jul 85	Purse Seine	Petersburg	53.0
			24 Jul 85	Troll	Yakutat AK	*
			27 Jul 85	Troll	Sitka AK	*
			29 Jul 85	Troll	Sitka AK	*
			29 Jul 85	Troll	Sitka AK	*
			30 Jul 85	Troll	Sitka AK	55.0
			30 Ju71 85	Purse Seine	Ketchikan AK	73.0
			06 Aug 85	Troll	Sitka AK	55.1
			09 Aug 85	Purse Seine	Petersburg AK	52.1
			10 Aug 85	Purse Seine	Ketchikan AK	58.0
			13 Aug 85	Purse Seine	Petersburg AK	57.:
			17 Aug 85	Troll	Juneau AK	*
			26 Aug 85	Troll	Pelican AK	68.0
			11 Sep 85	Troll	Petersburg AK	62.r
			07 Oct 85	Troll	Ketchikan AK	75.0
			14 Jul 85	Troll	Queen Charlotte Sound B.C.	68.1
			17 Jul 85	Troll	Queen Charlotte Sound B.C.	63.1
			03 Sep 85	Troll	Inside Queen Charlotte Island B.C.	*

Appendix Table A9 (cont)

Released wire tag number	Date released	Date recaptured	Recapture gear	Area	Length (cm)
	14 Sep 85	Troll	Inside Queen Charlotte Island B. C.	*	
	02 Nov 85	Troll	Inside Queen Charlotte Island B. C.	*	
	22 Jun 86	Troll	Outside South Vancouver Island B. C.	67.7	
	06 Aug 86	Troll	Winchester Bay OR	87.1	
	13 Aug 86	Sport	Columbia River	82.0	
<u>Columbia River</u>					
	02 Oct 85	Commercial Fishery	CRM 19.5-54.0	62.5	
	08 Oct 85	Commercial Fishery	CRM 19.5-54.0	59.8	
	03 Sep 84	Bonneville Trap	CRM 145.5	42.0	
	13 Sep 84	Bonneville Trap	CRM 145.5	39.0	
	28 Sep 84	Bonneville Trap	CRM 145.5	47.0	
	27 Aug 85	Bonneville Trap	CRM 145.5	88.0	
	27 Aug 86	Bonneville Trap	CRM 145.5	83.0	
	01 Sep 85	Fall Indian Net Fishery	CRM 148-292	74.2	
	11 Sep 85	Fall Indian Net Fishery	CRM 148-292	75.2	
	16 Sep 85	Fall Indian Net Fishery	CRM 148-292	64.5	
	16 Sep 85	Fall Indian Net Fishery	CRM 148-292	69.5	
	02 Sep 86	Fall Indian Net Fishery	CRM 148-292	82.9	
	02 Sep 86	Fall Indian Net Fishery	CRM 148-292	68.0	
	04 Sep 86	Fall Indian Net Fishery	CRM 148-292	85.0	
	04 Sep 86	Fall Indian Net Fishery	CRM 148-292	81.6	
	04 Sep 86	Fall Indian Net Fishery	CRM 148-292	90.0	
	08 Sep 86	Fall Indian Net Fishery	CRM 148-292	93.0	
	09 Sep 86	Fall Indian Net Fishery	CRM 148-292	87.0	
	10 Sep 86	Fall Indian Net Fishery	CRM 148-292	97.1	
	11 Sep 86	Fall Indian Net Fishery	CRM 148-292	85.6	

Appendix Table A9 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			11 Sep 86	Fall Indian Net Fishery	CRM 148-292	93.:
			11 Sep 86	Fall Indian Net Fishery	CRM 148-292	85.1
			12 Sep 86	Fall Indian Net Fishery	CRM 148-292	84.0
			16 Sep 86	Fall Indian Net Fishery	CRM 148-292	96.1
			16 Sep 86	Fall Indian Net Fishery	CRM 148-292	87.1
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	92.1
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	95.
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	87.1
			18 Sep 86	Fall Indian Net Fishery	CRM 148-292	72.
			08 Oct 85	River Sport	CRM 397.1	68.
			19 Sep 84	Priest Rapids Hatchery	CRM 397.1	40.
			11 Oct 84	Priest Rapids Hatchery	CRM 397.1	48.
			15 Oct 84	Priest Rapids Hatchery	CRM 397.1	39.
			18 Oct 84	Priest Rapids Hatchery	CRM 397.1	68.
			22 Oct 85	Priest Rapids Hatchery	CRM 397.1	63.
			25 Oct 85	Priest Rapids Hatchery	CRM 397.1	63.
			05 Nov 85	Priest Rapids Hatchery	CRM 397.1	70.
			18 Nov 85	Priest Rapids Hatchery	CRM 397.1	75.
			19 Nov 85	Priest Rapids Hatchery	CRM 397.1	68.
			19 Nov 85	Priest Rapids Hatchery	CRM 397.1	72.
			13 Nov 84	Stream Survey	CRM 397.1	42.

23162 15,007 8 Jul - 15 Jul 8

pendix Table A9 (cont)

ded g number	wire Number	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
<u>Ocean</u>						
	24 Sep 84		Troll	Petersburg AK		49.1
	09 Aug 84		Purse Seine	Inside Queen Charlotte Island B. C.		42.0
	15 Aug 84		Purse Seine	Inside Queen Charlotte Island B. C.		36.7
	Jul 85		Troll	Outside South Vancouver Island B. C.		60.6
	Aug 85		Troll	Inside Queen Charlotte Island B. C.		71.3
	Sep 85		Troll	Outside South Vancouver Island B. C.		65.1
	Sep 85		Troll	Outside North Vancouver Island B. C.		61.0
	05 Sep 85		Troll	Coos Bay OR		64.0
	08 Sep 86		Troll	Garibaldi OR		87.0
	30 Aug 86		Sport	Columbia River		82.0
<u>Columbia River</u>						
	31 Aug 86		Sport	CRM o-13.7		82.0
	17 Sep 85		Commercial Fishery	CRM 19.5-54.0		83.0
	02 Oct 85		Commercial Fishery	CRM 19.5-54.0		64.8
	26 Sep 85		Commercial Fishery	CRM 54.0-87.0		58.5
	18 Sep 84		Bonneville Trap	CRM 145.5		37.0
	22 Sep 84		Bonneville Trap	CRM 145.5		42.0
	22 Sep 84		Bonneville Trap	CRM 145.5		68.7
	15 Sep 85		Bonneville Trap	CRM 145.5		72.0
	25 Aug 86		Bonneville Trap	CRM 145.5		75.0
	09 Sep 86		Bonneville Trap	CRM 145.5		81.0
	09 Sep 86		Bonneville Trap	CRM 145.5		74.0
	09 Sep 85		Fall Indian Net Fishery	CRM 148-292		70.0
	09 Sep 85		Fall Indian Net Fishery	CRM 148-292		57.9
	14 Sep 85		Fall Indian Net Fishery	CRM 148-292		72.0
	17 Sep 85		Fall Indian Net Fishery	CRM 148-292		65.9
	17 Sep 85		Fall Indian Net Fishery	CRM 148-292		72.1
	02 Sep 86		Fall Indian Net Fishery	CRM 148-292		86.5
	04 Sep 86		Fall Indian Net Fishery	CRM 148-292		96.2
	07 Sep 86		Fall Indian Net Fishery	CRM 148-292		79.8

Appendix Table A9 (cont)

Coded wire tag number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			16 Sep 86	Fall Indian Net Fishery	CRM 148-292	81
			16 Sep 86	Fall Indian Net Fishery	CRM 148-292	88
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	88
			16 Sep 84	McNary Trap	CRM 292.0	38
			28 Sep 85	River Sport	CRM 397.1	66
			13 Nov 84	Priest Rapids Trap	CRM 397.1	
			19 Nov 84	Priest Rapids Trap	CRM 397.1	
			19 Sep 85	Priest Rapids Hatchery	CRM 397.1	39
			20 Oct 85	Priest Rapids Hatchery	CRM 397.1	59
			05 Nov 85	Priest Rapids Hatchery	CRM 397.1	69
			21 Nov 85	Priest Rapids Hatchery	CRM 397.1	69
			08 Dec 85	Stream Survey	CRM 397.1	62
231630	14,687	20 Jul - 27 Jul 81				
<u>Ocean</u>						
			15 Aug 84	Purse Seine	Inside Queen Charlotte Island B. C	
			22 Jun 86	Troll	Outside South Vancouver Island B. C	
<u>Columbia River</u>						
			16 Sep 84	Bonneville Trap	CRM 145.5	40
			24 Sep 85	Bonneville Trap	CRM 145.5	64
			09 Sep 86	Fall Indian Net Fishery	CRM 148-292	80
			10 Sep 86	Fall Indian Net Fishery	CRM 148-292	82
			12 Sep 86	Fall Indian Net Fishery	CRM 148-292	77
			16 Sep 86	Fall Indian Net Fishery	CRM 148-292	87
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	90
			18 Sep 86	Fall Indian Net Fishery	CRM 148-292	85
			11 Oct 84	McNary Trap	CRM 292.0	41
			30 Oct 85	River Sport	CRM 397.1	53
			23 Oct 85	Priest Rapids Hatchery	CRM 397.1	62

pendix Table A9 (cont)

ded wire g number	Number released	Dates released	Date recaptured	Recapture gear	Area	Length (cm)
			25 Nov 85	Priest Rapids Hatchery	CRM 397.1	68.0
231633	10,594	29 Jul - 5 Aug 81				
				<u>Ocean</u>		
			* Jul 85	Troll	Inside Queen Charlotte Island B. C.	*
			04 Jul 85	Sport	Strait of Juan Fuca WA	57.0
				<u>Columbia River</u>		
			25 Sep 85	Commercial Fishery	CRM 19.7-54.0	60.2
			17 Sep 84	Bonneville Trap	CRM 145.5	39.0
			20 Sep 84	Bonneville Trap	CRM 145.5	36.0
			24 Sep 84	Bonneville Trap	CRM 145.5	35.0
			15 Sep 85	Bonneville Trap	CRM 145.5	50.0
			27 Aug 86	Bonneville Trap	CRM 145.5	84.0
			28 Aug 86	Fall Indian Net Fishery	CRM 148-292	82.8
			04 Sep 86	Fall Indian Net Fishery	CRM 148-292	89.0
			08 Sep 86	Fall Indian Net Fishery	CRM 148-292	81.1
			10 Sep 86	Fall Indian Net Fishery	CRM 148-292	80.0
			11 Sep 86	Fall Indian Net Fishery	CRM 148-292	83.6
			17 Sep 86	Fall Indian Net Fishery	CRM 148-292	72.3
			15 Sep 84	McNary Trap	CRM 292.0	39.0
			04 Oct 84	McNary Trap	CRM 292.0	42.0
			11 Oct 84	McNary Trap	CRM 292.0	41.0
			20 Nov 85	Priest Rapids Hatchery	CRM 397.1	62.0
1624	17,266	12 Aug - 02 Sep 81				
				<u>Columbia River</u>		
			* 86	Bonneville Trap	CRM 145.5	*
			* 86	Fall Indian Net Fishery	CRM 148-292	*
			* 86	Fall Indian Net Fishery	CRM 148-292	*

No Data

APPENDIX B

BUDGET INFORMATION

BUDGET INFORMATION

A. Summary of expenditures

Personnel	\$ 12,233
Travel/Transportation	5,904
Rents/Communications/ Utilities	769
Supplies/Materials	10
Overhead (NOAA/DOC)	<u>4,552</u>
TOTAL,	\$ 23,468

B. Major items purchased - None